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#### APPROVAL PAGE

Title of Document:

Site Specific Health & Safety Plan,

200-ZP-1 Groundwater Treatability Test

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MAY 1995

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The approval signatures on this page indicate that this document has been authorized for information release to the public through appropriate channels. No other forms or signatures are required to document this information release.

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Total pages 13

BHI-DIS duc 12-/30/94

Project Name/Description/Requested BY: 200-ZP-1 Groundwater Treatment M. G. Galbraith; Treatability Test Eng.  This Safety Plan covers Field activities associated with the pilot-scale removal of low level Carbon Tetrachloride						
from groundwater underlying the 200-ZP-1 Operable Unit, 200 West Area. The process involves pumping groundwater from extraction well (299-W18-1) through above ground activated carbon beds and then re-injecting the treated water to the aquifer via an injection well (299-W18-4). Alternate wells may be used or added in the future. The treatment process is completely enclosed except as necessitated by maintenance needs and during activated carbon replacement.  NOTE: Changes made to this Safety Plan must be documented on a Field Change Authorization Form (attached) and have the approval of the Site Safety Officer.						
Location:    100						
Spill Response						
The 200-ZP-1 Groundwater Pump and Treat Site is located immediately south of the Plutonium Finishing Plant perimeter fence and immediately east of the 216-Z-12 Crib, 200 West Area. The site is located atop the vadose zone and groundwater plume associated with past practice discharges of carbon tetrachloride to the soil column at the Z-1-A, Z-9 and Z-18 Cribs, 200 Area.  Page 1 of 10						

## SITE SPECIFIC HEALTH AND SAFETY PLAN KEY PERSONNEL, JOB TITLE, AND TRAINING REQUIREMENTS

Job Title and/or Name	Training Requirements	Misc. Information
Project Operations and support Personnel	A, D, F, I, L, S and Q	
Project Test Lead (FTL)	A, D, E, F, I, L, S and Q	(1)Maintenance/engineering personnel not associated
Project Safety Representative (SSO)	A, E, F, I, L and Q	with breached system activities and having no
Maintenance/Engineering Personnel(1)	A, F, I, L and Q	potential for radiological/chemical exposure; eg,
Radiation Control Technicians (RCT)	A, C, D, F, I, L and Q	work on electrical equipment, performing engineering
Visitors <sup>(2)</sup>	Q and R	measurments, etc. need only to meet "visitor"
Industrial Hygiene Technicians	A, F, I, L and Q	requirements. Otherwise, listed training requirements
	NOTE: Visitors shall comply with all instructions and/or direction from the FTL.	apply.
		(2)Visitors are persons not directly associated with
		project operations and who have no need to enter
		RCA(s), are not associated with breached system
		activities, and who have no foreseeable potential for
۵.		chemical/radiological exposure. Otherwise, visitors
		shall meet "project operations" training requirements.

List the letter(s) of training requirements (classes) required for individuals(s) named above.

A.	40 hr Haz. Waste	G.	Ska Pak	M.	Bioassay	S.
B.	24 hr Haz. Waste	И.	SCBA	N.	Whole Body Count	T.
C.	Rad. Worker Training	І.	First Aid/CPR	O.	Chest Count	U.
D.	3 Day OJT	Ј.	Noise Control	P.	Asbestos Worker	V.
E.	8 Hr. Supervisor	К.	Mask Fit	Q.	Read Safety Plan & Attend PJS Mtg.	**
F.	8 Hr. Refresher	L.	Haz. Waste Worker Medical Exam	R.	Escorted	

Site-Specific

WASTE TYPES, WASTE CHARACTERISTICS, AND HAZARD CONCERNS						
Waste Types:	d ⊠ Solid □	Gas	Unknown		Other Specify:	
Waste Characteristics:	Chemical Corrosive Toxic Inert		Biological Flammable Volatile Reactive		Radioactive (See RWI Unknown Other <i>specify</i> :	P No.
Hazards of Concern:	Temperature Extremes Fire Hazards Off Road Vehicle Use Remote Work Area Hazard Communications Pinch Points Overhead Hazards		Noise Electrical Lifting Sanitation Permits Heavy Equipment Walking/Working Surfaces		Biological Eye Hazards Vehicle Traffic Rad Exposure Chemical Exposure Compressed Air	
OVERALL HAZARD CLASSIFICAT	ION: High M	edium	l 🛛 Low	☐ Neg	gligible 🔲 Unkno	own
Fully characterized, low level carbon tetrachloride in the groundwater and completely enclosed process system represent a low order of exposure potential during routine operations. Change-out of the activated carbon pose a higher order of risk for worker exposure. Carbon change-out will be accompanied by carbon tetrachloride monitoring to assess the need for added PPE and/or controls.  NOTE: ANY EMPLOYEE WHO FINDS A CONDITION THAT THEY BELIEVE TO BE UNSAFE SHALL IMMEDIATELY REPORT IT TO THR SSO OR FTL. IF SUCH CONDITION/ACTIVITY POSES AN IMMINENT HAZARD, THE EMPLOYEE HAS AUTHORITY TO STOP WORK.						

KNOWN CONTAMINANTS

KNOWN CONTAMINANTS	PEL/TLV (ppm or mg/m³)	IDLH (ppm or mg/m')	WARNING PROPERTIES/CONCENTRATION (ppm or mg/m³)	1. TARGET ORGANS 2. EXPOSURE SYMPTOMS	IMMEDIATE FIRST AID MEASURES
Carbon Tetrachloride	5 ppm	300 ppm	(A) Ether-like odor/70-80 ppm	1. L, K, CNS, LS 2. D, HA, CD	FA, MA
NA Most Available  "U + Unknown  NE = Non Established  N/A = Not Applicable  WARNING PROPERTIES  A = Odor  B = Visual  C = Irritant	CA = Carcino	osorption Jervous System Jory System	EXPOSURE SYMPTOMS  D = Dizziness  E = Skin/Eye/Respiratory Irritant  C = Confusion  F = Fatigue  HA = Headache  CD = CNS Depression  N = Nausea  W = Weakness  V = Vomiting	IST AID MEASURES  IrW = Irrigate with (H <sub>2</sub> O)  PA = Get to Fresh Air  MA = Medical Aid  IS = Wash Soap and Water	

- Other

= Other

	SITE SPECIFIC HEALTH AND SAFETY PLAN	
TEMPERATURE EXTREMES N/A	HEAVY EQUIPMENT/MACHINERY N/A	REMOTE WORK AREA N/A
Monitor work periodically.  Adjust work/rest regimen according to WGT.  Minimize/maximize clothing where possible.  Drink cool/warm liquids as appropriate.  Discuss signs/symptoms of heat/cold stress.  NOTE:Temperature extremes are related to seasonal climatic changes.  Any introduced temperature extremes require SSO evaluation and approval	Safety features/devices in place and functioning Warning signs in place where required. Flagger assigned where necessary. Proper rigging used. Guards in place. Swing radius roped off or guarded. Regular inspections of equipment	Know your location. Communication available - phone/radio First aid kit and trained personnel Know emergency numbers. Use buddy system when required by manager.
PERMITS N/A	OFF ROAD VEHICLE USE N/A	HAZARD COMMUNICATION N/A
Confined Space Permit. Hot Work Permit Fall Protection Work Plan Radiation Work Permit. Excavation Permit. NOTE: Assure that all necessary permits are obtained prior to initiation of work.	Fire extinguisher/shovel in vehicle Communication - radio/phone in vehicle. Do not park in fire hazard areas. Be aware of catalytic conventor hazard.	MSDS file in place and current. Containers labeled. Workers apprised of new chemical hazards.
PINCH POINTS N/A	ELECTRICAL N/A	NOISE N/A
Assure guards in place  Brief site personnel on location of potential punch—points.  Identify or post areas where guarding is not——appropriate of feasible.	GFCI in outdoor/wet locations Grounding of equipment. Lools and courts in good condition Cords protected. Exposed wiring guarded or covered.	Hearing protection worn. Signs posted. Hearing conservation training
TALKING/WORKING SURFACES N/A	SANITATION N/A	LIFTING N/A
Carry out daily housekeeping efforts.  Keep walkways/work areas clear.  Designate walkways/routes where appropriate  Tag or post problem areas where necessary.	Portable toilets on site or within vehicle reach.  Potable water/cups.  Wash water and soap.  Eating/smoking in designated areas only. Empty trash and waste food receptacles daily.	Use proper lifting techniques. Use buddy system for awkward/heavy loads. Use mechanical lifting devices as appropriate.
COMPRESSED AIR N/A	FIRE HAZARDS N/A	BIOLOGICAL N/A
Verify that system pressure is equal to ambient pressure prior to breaching system.  Regulate pressure to lowest pressure needed to perform task.  Do not use compressed air for cleaning dusty surfaces	Flammable liquids stored properly. Combustible materials accumulation. Heaters approved type/installed properly. Fire extinguisher in place/proper type. Ignition sources eliminated or protected.	Control rodent intrusion and harborage Be cognizant of poisonous reptiles and insect harborages (cool, dark spaces and equipment that has laid on the ground overnight.)
NOTE: If categories not applicable, check N/A.		

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#### MONITORING STRATEGY/ACTION LEVELS

EQUIPMENT OR INSTRUMENT	FREQUENCY OF USE	ACTION LEVEL	SPECIFIC ACTION(S)
М	5	85 dBA (8-hr. TWA)	Determine hearing protection requirements. Post high noise areas
A, D, F	5 (During GAC change-out)	5 ppm in breathing zone	Use air-line respirators

PID Radiation Surveys see RWP No. \_\_\_\_\_ 1. Hourly Monitoring Not Required FID 2. 15 Min. Personal Exposure Monitoring (HEHF) GGI/LEL 0, 3. Continuous Biological Monitoring Detector Tubes 4. AM/PM Dust Monitor Halide Detectors 5. As determined by SSO Odyssey Sound Level Meter 6. Any ppm reading inside trailer Μ. G. GC N.

Where appropriate list the letter or number corresponding to the instrument or monitoring frequency in spaces above.

7.

8.

## SITE SPECIFIC SAFETY HEALTH AND SAFETY PLAN PERSONAL PROTECTIVE EQUIPMENT

Job Task Work Zone/Location		one/Location	PPE Level		
1, 14			Level "D"		
13			Level "D" or as specified by Site Safety Officer		
List the letter or number corresponding to the requirement in the appropriate space above or fill in pertinent information. Line out items not necessary in PPF levels		priate space above or fill	Level "D" 1, Hard Hat 2, Substantial Footwear 3, Safety Glasses 4, Leather gloves (for handling tool/equipment		
1. 2. 3.	Sampling  Excavation Decontamination	7. 8. 9.	Support Zone SCA Exclusion Zone	13. Normal Operations 14. 15.	Level "C" APR with cartridge plus level "D" above
4. 5. 6.	Observation Monitoring Drilling	10. 11. 12.	Control Zone RCA Carbon Change-out	16. 17. 18.	Level "B" Airline respirator  Chemical resistant coveralls

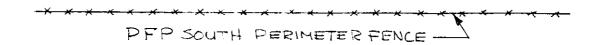
# SITE SPECIFIC SAFETY HEALTH AND SAFFTY PLAN SITE ACCESS AND WORK ZONES 1. Support Zone: Is the area outside of the Control Zone boundry rope: ie, parking area, conex boxes, portable toilet and office trailers. 2. Contamination Reduction Zone: No routine or permanent Contamination Reduction Zone(s) is anticipated unless required by SSO. 3. Exclusion Zone: A temporary Exclusion Zone may be established around GAC vessels during GAC change-out, as per SSO 4. Control Zone: Is the area inside of the rope boundry. The Control Zone will be posted "Authorized Personnel Only" and with other postings necessary to convey appropriate safety information, as determined by FTL and/or SSO. 5. SITE MAP (See attached Figure-I)

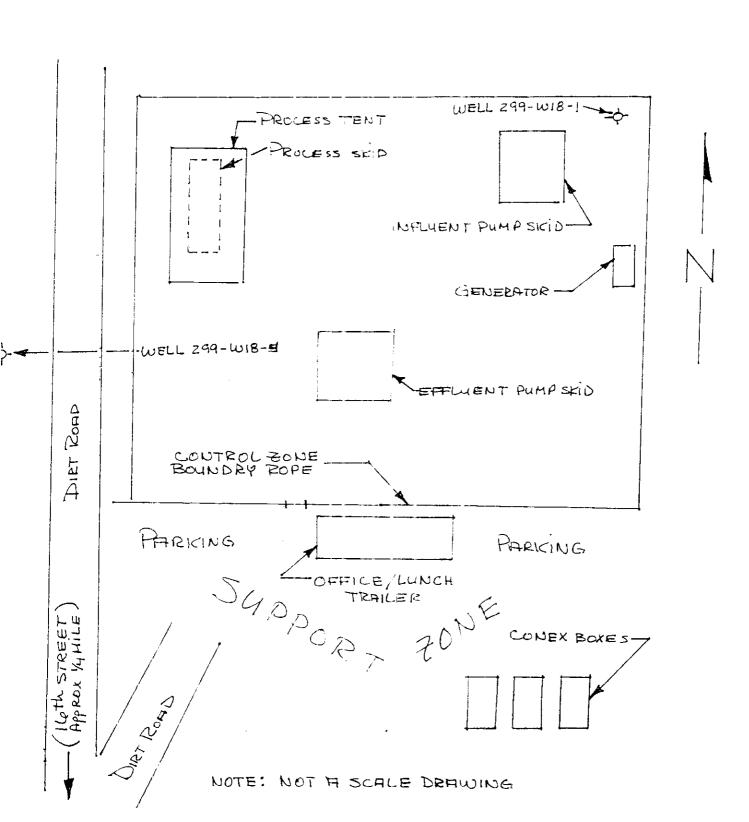
	<del></del>	DECONTAMINATION PROCEDURES	The state of the s
Personnel Deconta		Sampling Equipment Decontamination	Heavy Equipment Decontamination
(1) As required by SSO	/	As/if required by RCT or environmental regulation	on N/A
(2) a. Remove affected clothing			
b. Rinse with tepid water			
	EQUIPMENT RE	EQUIREMENTS CHECKLIST (Underline requir	ed items or add others)
T. Fitst Aid Kit	6. <u>Signs</u> *	11. Portable toilet	16.
2 <u>PPE</u>	7. Decon Equipn	nent 12. <u>Spill containment kit</u>	17.
3. <u>Fire Extinguisher</u>	8. <u>Radio/Phone</u>	13. Wash water	18.
4. Wind Indicator	9. Breathing Air	14. Potable water	19.
5. Eye Wash	10. Signal Device	15.	20.
* (Authorized Personnel, Em	ergency Shut-Off, Exclusion	Zone, Noise Hazard Area, Control Zone, No Sn	noking and other informational/warning signs as deemed
appropreiate by the Task L	ead or SSO		

### **EMERGENCY PROCEDURES**

EMERGENCY	PROCEDURES		
CONTINGENCY PLANS	EMERGENCY CONTACTS NAME	PHONE	
FIRE: 1. Alert others to evacuate; 2. Notify Fire Dept. (811 on cell phone, 373-3800/911 on landline phone or use station	All Emergencies: Patrol Operations Center	373-3800	
radio)  3. Try to isolate or contain incipient fire without putting	1	) 373-9733 ) 627-5080	
personnel at risk. 4. Direct Fire Dept. to fire.	Site Safety Officer: C. H. St.John (W	) 376-5459 ) 946-7205	
PERSONAL INJURY: (Other than minor 1st aid) 1. Alert others	Fire Department: Battalion Chief North	373-3856	
in area for assistance. 2. transport to med. aid station or call for emergency responders. 3. Provide necessary	OU Task Lead: J. R. Freeman-Pollard	372-1402	
assistance to injured. 4. Direct emergency responders to injured.	Patrol: Hanford Patrol 911 o	r 373-3800	
<u>CHEMICAL EXPOSURE:</u> 1. Alent others for assistance, if needed	IT Industrial Safety: (ITH) J C Fllis	372-9548	
<ol> <li>Notify SSO or HSO. 3. Take necessary action to reduce exposure.</li> <li>Show SSO location/operation/activity involving</li> </ol>	Health Physics: S. K. DeMers M. A. Wesselman	376-3707 376-2084	
exposure.			
SPILL CONTROL PLAN	MEDICAL FACILITIES LOCATION	PHONE	
Contacts: Fire Dept., Hazardous Material Team (373-3800/911) For spill guidance call Ken Gano (373-4949 (W) or 783-0891 (H)	HEHF Medical Aid Station 2719 WA Bldg. HEHF Medical Aid Station 2719 EA Bldg.	373-2714 373-2314	
Containment Kit Located: In tent	Kadlec Hospital Richland	946 - 4611	
Other Equipment: Shovels, plastic tubs/buckets	Actions to take: Provide 1st aid, transport injured to medical station or call emergency responders (811,911 or 373-3800), make notifications to above listed contacts, applicable.		
Actions to Take: 1. Alert others in area. 2. Notify HAZMAI Team, as appropriate. 3. Try to contain/stop spill using necessary PPE and without putting personnel at risk. 4. Show location of spill to HAZMAT Team.			

200-ZP-1 Groundwater Treatability Test Site Map (Figure 1)





# SITE SPECIFIC HEALTH AND SAFETY PLAN FIELD CHANGE AUTHORIZATION

Section to be Changed	Page
Person Requesting Change	
Verbal Authorization by Health & Safety Officer	Time
Description of Change	
Justification for Change	
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eant.	
A 3 D	
Approved By	Date/Time
Field Team Brief on Change By	Dātē/lime